

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA22 | Whittington to Handsacre

Operational assessment (SV-004-022)

Sound, noise and vibration

November 2013

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Department
for Transport

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Appendix SV-004-022

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|-----------------------|----------------------------|-----|
| Environmental topic: | Sound, noise and vibration | SV |
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| Community forum area: | Whittington to Handsacre | 022 |

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1 Introduction

1.1 Structure of the sound, noise and vibration appendices

- 1.1.1 The sound, noise and vibration appendices comprise four sections. The first of these details the methodology used (Appendix SV-001-000) and relates to the sound, noise and vibration assessment for all community forum areas (CFA).
- 1.1.2 For the Whittington to Handsacre community forum area (CFA22), the other three sections are as follows:
- baseline sound, noise and vibration (Appendix SV-002-022);
 - construction sound, noise and vibration (Appendix SV-003-022); and
 - operational sound, noise and vibration (Appendix SV-004-022) (this appendix).
- 1.1.3 The outcomes of this assessment are summarised in Volume 2: CFA22 Report, Chapter 11 Sound, Noise and Vibration.
- 1.1.4 Maps referred to throughout the sound, noise and vibration appendices are contained in the Volume 5 sound, noise and vibration map book.
- 1.1.5 This appendix presents the likely noise and vibration impacts, effects and significant effects arising from the operation of the Proposed Scheme for the Whittington to Handsacre area on:
- people, primarily where they live ('residential receptors') in terms a) individual dwellings and b) on a wider community basis, including any shared community spaces; and
 - community facilities such as schools, hospitals, places of worship, and also commercial properties such as offices and hotels, collectively described as 'non-residential receptors' and 'quiet areas'.
- 1.1.6 The assessment of likely impacts, effects and significant effects from operational noise and vibration on agricultural, community, ecological or heritage receptors and the assessment of tranquillity are presented in the following documents within Volume 5:
- Agriculture, forestry and soils Appendix AG-001-022
 - Community Appendix CM-001-022
 - Ecology Appendix EC-005-003
 - Heritage Appendix CH-003-022
 - Landscape and Visual Appendix LV-001-022

1.2 Evaluation of impacts and effects

- 1.2.1 This appendix provides a quantitative assessment of operational noise and vibration impacts and effects and a qualitative assessment of likely significant effects, based on the impacts and effects identified and other local context information consistent with the scope and methodology defined for the Proposed Scheme.
- 1.2.2 Indirect effects arising from permanent changes in traffic patterns on the existing road and rail networks as a consequence of the Proposed Scheme are also reported in this appendix, where they would occur within the study area as defined in Volume 5 Appendix SV-001-000.
- 1.2.3 Route-wide impacts, effects and significant effects associated with noise or vibration from the operation of the Proposed Scheme are reported in Volume 3.
- 1.2.4 Off-route effects of noise or vibration arising from the operation of the Proposed Scheme, including those likely to arise from permanent changes in traffic patterns on roads or railways outside of the study area for direct effects are reported in Volume 4.
- 1.2.5 In undertaking the assessment of sound, noise and vibration, consistent with EIA Regulations and emerging National Planning Practice Guidance¹ a differentiation between impacts effects, adverse effects and significant effects is made. Further information is provided in Volume 5: Appendix SV001-000.
- 1.2.6 The assessment of impacts has been undertaken at assessment locations that are representative of a number of dwellings or other sensitive receptors. The Assessment Locations employed in this assessment are presented on map series Sv-02 in the CFA22 Volume 5 sound, noise and vibration map book.

¹ National Planning Practice Guidance – Noise <http://planningguidance.planningportal.gov.uk> ; refer to the table summarising noise exposure hierarchy

2 Scope, assumptions and limitations

2.1 Regional and local policy guidance

2.1.1 The policy framework for sound, noise and vibration is set out in Volume 1 and in Appendix SV-001-000. As part of the engagement with local authorities through the Planning Forum Sub Group - Acoustics, information regarding any specific local planning guidance in respect of noise and vibration has been requested. Whilst no information has been received for this study area via the Planning Forum Sub Group - Acoustics, the following local policy guidance on noise and vibration has been identified:

- Lichfield District Council – Local Plan – Our Strategy (July 2012)

2.1.2 This guidance has been considered as part of formulating the detailed application of the impact and significance criteria set out in Volume 5, Appendix SV-001-000.

2.2 Engagement

2.2.1 Details of engagement on a route-wide basis with the local and county authorities' Environmental Health Practitioners via the Planning Forum Sub Group - Acoustics, is set out in Volume 1, Section 8.

2.2.2 Engagement with communities has been via the Community Forums, as set out in Volume 1. In respect of sound, noise and vibration the following discussions have taken place:

- general discussions in respect of local issues, including possible ways to avoid and mitigate the potential impacts of noise or vibration
- September / October 2012; a specific presentation about sound, noise and vibration with discussion afterwards with one of the project team specialists;
- November / December 2012; specific request for the Community Forum to propose baseline sound monitoring locations;
- January / February 2013; feedback to the Community Forum on any proposed baseline monitoring locations; and
- verbal / written response to questions on sound, noise and vibration.

2.3 Methodology

2.3.1 The methodology used for the assessment of airborne sound, ground-borne sound and vibration impacts and the determination of significant effects is defined in the Scope and Methodology Report (SMR) (Volume 5: Appendix CT-001-000/1), is clarified in a number of areas by the SMR addendum (Volume 5: Appendix CT-001-000/2). Further information is contained in Volume 5: Appendix SV-001-000.

2.4 Assumptions

- 2.4.1 Route-wide assumptions are outlined in Volume 1, Section 8, and are further detailed in Volume 5: Appendix SV-001-000. Local assumptions that apply to the assessment of operational sound noise and vibration within this CFA are set out in Volume 2: Report 22.

2.5 Local limitations

- 2.5.1 In this area, there are a number of locations where the land or property owners did not permit baseline sound level monitoring to be undertaken at their premises. However, sufficient information has been obtained to undertake the assessment. Further information is provided in Volume 5: Appendix SV-002-022.

3 Environmental baseline

3.1 Existing baseline

3.1.1 Baseline sound level data has been collected at locations representative of the airborne sound-sensitive receptors. The existing and future baseline airborne sound levels derived from these measurements are included within Table 3. Details of the baseline data collection and the methodology are given in Volume 5: Appendix SV-001-000 and specifically for this study area in Volume 5: Appendix SV-002-022.

3.1.2 The majority of receptors adjacent to the line of the route are not currently subject to appreciable vibration and therefore vibration at all receptors has been assessed using the absolute vibration criteria as described in Volume 5: Appendix SV-001-000.

3.2 Future baseline

3.2.1 The assessment is based upon the predicted change in sound levels that result from the Proposed Scheme. The assessment initially considered a reasonable worst case (that would overestimate the change in levels) by assuming that sound levels would not change from the existing baseline year of 2012/2013. Where significant effects were identified on this basis, the effects have been assessed using the baseline year of 2026 to coincide with the proposed start of passenger services. The future baseline is for the sound environment that would exist in 2026 without the Proposed Scheme.

4 Effects arising during operation

4.1 Introduction

4.1.1 The assessment is reported first for ground-borne sound and vibration and then for airborne sound. Under each of these headings, the results of the quantitative identification of impacts and effects are presented. This is followed by the identification of significant effects and the evidence used to support these conclusions.

4.1.2 The structure of this assessment report is:

- Avoidance and mitigation measures
- Quantitative identification of impact and effects
 - Ground-borne sound and vibration
 - Residential
 - Non-residential
 - Airborne sound
 - Residential
 - Non-residential
- Assessment of impacts and effects
 - Residential receptors: direct effects – dwellings
 - Residential receptors: direct effects – communities
 - Residential receptors: indirect effects
 - Non-residential receptors: direct effects
 - Non-residential receptors: indirect effects
 - Cumulative effects from the proposed scheme and other committed development.

4.2 Avoidance and mitigation measures

4.2.1 These are set out in Volume 2: Report 22.

4.3 Quantitative identification of impacts and effects

Ground-borne sound and vibration

4.3.2 Assessment locations defined for the quantitative assessment of impacts are shown on map series SV-02 in the CFA22 Volume 5 sound, noise and vibration map book.

4.3.3 For each Assessment Location, the assessment results for residential and non-residential receptors are presented in Table 1. Explanation of the information in Table 1 is provided in Appendix SV-001-000, with the following additional notes.






| | |
|---|--|
| B | For non-residential receptors further detail about the type of effect is set out in the text of Volume 5: Appendix SV-001-000. |
| NA | Type of effect - Generally no adverse effect |
| A | Type of effect - Adverse effect |
| S | Type of effect - Significant adverse effect |
| VDV | Vibration Dose Value |
| ~ | The forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in Volume 5: Appendix SV-001-000). |
| ^ | The impact methodology has identified a potential significant effect at this receptor which based upon further qualitative information is not considered to be a likely significant effect. Please refer the end of this Appendix for further information. |
|  | Where the significant effect column is highlighted in pink, then a significant effect is identified at the referenced residential community area, or individual receptor. |
|  | Yellow denotes a low ground-borne noise impact or a minor ground-borne vibration impact |
|  | Orange denotes a medium ground-borne noise impact or a moderate ground-borne vibration impact |
|  | Red denotes a high ground-borne noise impact or a major ground-borne vibration impact |
|  | Dark red denotes a very high ground-borne noise impact |

Table 1: Ground-borne sound and vibration impacts and effects at residential and non-residential receptors

| Assessment location | | Impact criteria | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|---------------------------|--|---|--|-------------------------------|-------------------------------|----------------|------------------|-----------------|----------------------|----------------|-----------------|-------------------|--------------------|
| ID | Area represented | Ground-borne sound level dB L _{pASmax} | VDV m/s ^{1.75} Daytime (07:00 – 23:00) | VDV m/s ^{1.75} Night time (23:00 – 07:00) | % increase or decrease in VDV | Number of impacts represented | Type of effect | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation effect | |
| 623 | Tuppenhurst Lane, Rugeley | - | 0.15 | 0.07 | - | 3 | NA | R | T | - | - | - | - | |
| 5738 | Alandale Avenue, Rugeley | - | 0.00 | 0.00 | - | 24 | NA | R | T | - | - | - | - | |
| 6336 | Proctor Road, Rugeley | - | 0.00 | 0.00 | - | 37 | NA | R | T | - | - | - | - | |
| 6354 | Johns Avenue, Rugeley | - | 0.00 | 0.00 | - | 11 | NA | R | T | - | - | - | - | |
| 6455 | Millcroft Way, Handsacre | - | 0.00 | 0.00 | - | 18 | NA | R | T | - | - | - | - | |
| 6492 | Beech Close, Handsacre | - | 0.00 | 0.00 | - | 11 | NA | R | T | - | - | - | - | |
| 6607 | Barn Road, Handsacre | - | 0.00 | 0.00 | - | 17 | NA | R | T | - | - | - | - | |
| 7293 | Millcroft Way, Handsacre | - | 0.00 | 0.00 | - | 14 | NA | R | T | - | - | - | - | |
| 7467 | Rowan Drive, Handsacre | - | 0.27 | 0.14 | - | 23 | A | R | T | - | - | - | - | ^ |
| 7597 | Chestnut Close, Handsacre | - | 0.00 | 0.00 | - | 11 | NA | R | T | - | - | - | - | |
| 7621 | Chestnut Close, Handsacre | - | 0.10 | 0.05 | - | 20 | NA | R | T | - | - | - | - | |
| 17748 | Broad Lane, Huddlesford | - | 0.06 | 0.03 | - | 1 | NA | R | T | - | - | - | - | |
| 17785 | Cappers Lane, Lichfield | - | 0.00 | 0.00 | - | 1 | NA | R | T | - | - | - | - | |
| 20441 | Wood End Lane, Curborough | - | 0.23 | 0.12 | - | 1 | A | R | T | - | - | - | - | ~ |

Impact summary

- 4.3.4 The operational ground-borne noise and vibration impacts identified in Table 1 are summarised in Table 2.

Table 2: Summary of operational ground-borne noise and vibration impacts

| | Number of ground-borne sound impacts | | | |
|----------------------------|--|----------|-------|-------------------------|
| | Low | Medium | High | Very High |
| Residential properties | 0 | 0 | 0 | 0 |
| Non-residential properties | 0 | | | 0 |
| | Number of ground-borne vibration impacts | | | |
| | Minor | Moderate | Major | Risk of building damage |
| Residential properties | 24 | 0 | 0 | 0 |
| Non-residential properties | 0 | | | 0 |

Airborne sound: direct impacts and effects

- 4.3.5 The direct effects from the operation of the Proposed Scheme as well as any new, amended or altered roads or railway lines, which are identified as part of the scheme, are presented in Table 3.
- 4.3.6 The assessment information, impact criteria and significance criteria for the assessment of the incorporated mitigation case at residential and non-residential receptors are presented in Table 3. The results should be considered in conjunction with the information contained in map series Sv-02 in the CFA22 Volume 5 sound, noise and vibration map book.
- 4.3.7 Explanation of the Table 3 information is provided in Volume 5: Appendix SV001-000, with the following additional notes.



Where the significant effect column is marked, then a significant effect is identified at the referenced group of dwellings, or individual residential or non-residential receptor.

Yellow denotes a minor impact at a residential building – a change is of 3-5 dB

Orange denotes a moderate impact at a residential building – a change is of 5-10 dB

Red denotes a major impact at a residential building – a change is of >10 dB

* Day - $L_{pAeq,07:00-23:00}$

** Night - $L_{pAeq,23:00-07:00}$

*** Max - L_{pAFMax} In the Proposed Scheme only column, two values are presented. The first is the value for the HS2 mitigated train and the second is the value for the TSI compliant train. For further information refer to Volume 5: Appendix SV-001-000.

**** Where the Proposed Scheme modifies an existing source, i.e. road or railway realignments, the *Proposed Scheme only* level in the table includes the sound from the modified source. In this situation the *Do something (Opening year baseline + Year 15 traffic)* level has been corrected so as to not double count the sound associated with the road or railway on its new and existing alignment.

A Adverse effect

B For non-residential receptors further detail about the type of effect is set out in the text of Appendix SV-001-000.

| | |
|----|--|
| CD | Committed Development. The value in brackets in the number of impacts represented column is the value with the committed development. |
| G | (G1)Theatres, large auditoria and concert halls, (G2) Sound recording and broadcast studios, (G3) Places of meeting for religious worship, courts, cinemas, lecture theatres, museums and small auditoria or halls, (G4) Schools, colleges, hospitals, hotels and libraries, and (G5) Offices and general commercial premises |
| H | High existing ambient sound level. Defined as $>65\text{dB}_{\text{Aeq, day}}$ and/or $>55\text{dB}_{\text{Aeq, night}}$ |
| L | Low existing ambient sound level. Defined as $<42\text{dB}_{\text{Aeq, day}}$ and/or $<32\text{dB}_{\text{Aeq, night}}$ |
| LD | Landscape receptor |
| NA | Generally no adverse effect |
| NI | The receptor is predicted to qualify for mitigation, which shall be provided to the specification defined in the Noise Insulation (Railways and other Guided Rail Systems) Regulations 1996 |
| R | Residential |
| RM | Residential mooring |
| S | Significant adverse effect |
| U | Unacceptable adverse effect |
| # | A change of 3dB or greater has been identified however, the assessment methodology only defines an impact where the absolute sound level from the Proposed Scheme is greater or equal to 50 dB $L_{\text{pAeq, 23:00} - 07:00}$ during the daytime or 40 dB $L_{\text{pAeq, 07:00} - 23:00}$ at night. At the receptor denoted the absolute level condition is not met and therefore no impact is identified. |
| ~ | The forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in Volume 5: Appendix SV-001-000).. |
| \$ | A change of 3dB or greater has been identified however, the impact methodology for non-residential receptors includes a screening criteria for G3 building use of 50 dB $L_{\text{pAeq, 07:00-23:00}}$, for G4 building use 55 dB $L_{\text{pAeq, 07:00-23:00}}$ and 45 dB $L_{\text{pAeq, 23:00-07:00}}$, for G5 building use 55 dB $L_{\text{pAeq, 07:00-23:00}}$. At the receptor denoted the screening criteria is not met and therefore no impact is identified. Further information is provided in Volume 5: Appendix SV-001-000. |
| ^ | The impact methodology has either identified an impact at a receptor which based upon further qualitative information does not gives rise to a significant effect. Further information is provided at the end of this Appendix. |

Table 3: Operational airborne sound level, noise impacts and effects

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|--------------------------------|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| 277 | Lysways Lane, Hanch | 44 | 33 | 58/- | 45 | 34 | 53 | 44 | 33 | -2 | 0 | NA | 2 | R | T | - | - | - | - | |
| 572 | Lichfield Road, Armitage | 41 | 30 | 54/- | 42 | 33 | 52 | 41 | 30 | -1 | -2 | NA | 2 | R | T | L | - | - | - | |
| 623 | Tuppenhurst Lane, Rugeley | 59 | 49 | 75/- | 54 | 48 | 54 | 59 | 49 | 5 | 1 | A | 3 | R | T | - | - | - | - | ~ |
| 642 | Lichfield Road, King's Bromley | 51 | 39 | 63/- | 57 | 38 | 60 | 57 | 39 | 0 | 1 | A | 2 | R | T | - | - | - | - | |
| 746 | Tuppenhurst Lane, Rugeley | 52 | 41 | 64/- | 50 | 34 | 51 | 52 | 41 | 2 | 7 | A | 1 | R | T | - | - | - | - | ~ |
| 3228 | Foxleigh Meadows, Handsacre | 44 | 38 | 54/- | 53 | 42 | 53 | 54 | 43 | 0 | 1 | NA | 104 | R | T | - | - | - | - | |
| 5666 | Tuppenhurst Lane, Rugeley | 46 | 40 | 58/- | 57 | 44 | 60 | 57 | 45 | 0 | 1 | A | 51 | R | T | - | - | - | - | |
| 5738 | Alandale Avenue, Rugeley | 54 | 48 | 67/- | 58 | 51 | 56 | 59 | 52 | 1 | 1 | A | 24 | R | T | - | - | - | - | |
| 5818 | Tuppenhurst Lane, Rugeley | 43 | 36 | 55/- | 57 | 44 | 60 | 57 | 44 | 0 | 0 | NA | 61 | R | T | - | - | - | - | |
| 6025 | Tuppenhurst Lane, Rugeley | 43 | 34 | 59/- | 45 | 39 | 46 | 47 | 41 | 2 | 1 | NA | 2 | R | T | - | - | - | - | |
| 6042 | Bridge Road, Rugeley | 45 | 38 | 56/- | 46 | 41 | 50 | 46 | 41 | 0 | 0 | NA | 45 | R | T | - | - | - | - | |
| 6336 | Proctor Road, Rugeley | 55 | 48 | 70/- | 54 | 49 | 59 | 55 | 48 | 1 | -1 | A | 37 | R | T | - | - | - | - | |
| 6354 | Johns Avenue, Rugeley | 60 | 51 | 75/- | 58 | 51 | 56 | 60 | 52 | 2 | 1 | A | 11 | R | T | - | - | - | - | |
| 6455 | Millcroft Way, Handsacre | 40 | 31 | 61/- | 55 | 40 | 64 | 55 | 41 | 0 | 1 | A | 18 | R | T | - | - | - | - | |
| 6492 | Beech Close, Handsacre | 59 | 50 | 77/- | 51 | 48 | 54 | 59 | 50 | 8 | 2 | A | 10 | R | T | - | - | - | - | OSV22-C02 |
| 6574 | Spode Avenue, Rugeley | 50 | 42 | 66/- | 51 | 46 | 53 | 53 | 48 | 2 | 1 | A | 23 | R | T | - | - | - | - | |
| 6607 | Barn Road, Handsacre | 64 | 54 | 69/- | 51 | 45 | 54 | 64 | 55 | 12 | 10 | A | 15 | R | T | - | - | Y | - | OSV22-C02 |
| 6861 | Fair View, Rugeley | 46 | 38 | 61/- | 57 | 42 | 64 | 57 | 43 | 0 | 1 | NA | 41 | R | T | - | - | - | - | |
| 6934 | Lichfield Road, Armitage | 45 | 37 | 60/- | 57 | 42 | 58 | 57 | 42 | 0 | 0 | NA | 24 | R | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|--------------------------------------|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| 7044 | Handsacre Crescent, Rugeley | 42 | 35 | 55/- | 43 | 33 | 43 | 45 | 35 | 2 | 2 | NA | 46 | R | T | - | - | - | - | |
| 7136 | Hill Top View, Rugeley | 42 | 34 | 55/- | 43 | 33 | 49 | 44 | 34 | 1 | 1 | NA | 47 | R | T | - | - | - | - | |
| 7181 | Lichfield Road, Armitage | 52 | 39 | 67/- | 57 | 33 | 47 | 57 | 39 | 0 | 7 | A | 6 | R | T | L | - | - | - | # |
| 7293 | Millcroft Way, Handsacre | 56 | 46 | 70/- | 60 | 45 | 64 | 60 | 46 | 1 | 1 | A | 14 | R | T | - | - | - | - | |
| 7426 | Rowan Drive, Handsacre | 48 | 38 | 62/- | 53 | 31 | 48 | 54 | 38 | 0 | 7 | NA | 32 | R | T | L | - | - | - | # |
| 7467 | Rowan Drive, Handsacre | 58 | 49 | 77/- | 51 | 42 | 48 | 58 | 49 | 7 | 7 | A | 23 | R | T | - | - | Y | - | OSV22-Co2 |
| 7597 | Chestnut Close, Handsacre | 64 | 54 | 69/- | 54 | 45 | 54 | 64 | 54 | 9 | 9 | A | 11 | R | T | - | - | - | - | OSV22-Co2 |
| 7621 | Chestnut Close, Handsacre | 53 | 44 | 72/- | 51 | 45 | 54 | 53 | 44 | 2 | -1 | A | 20 | R | T | - | - | - | - | |
| 7798 | Lichfield Road, Armitage | 47 | 39 | 65/- | 57 | 42 | 64 | 57 | 44 | 0 | 1 | NA | 21 | R | T | - | - | - | - | |
| 7844 | Tuppenhurst Lane, Rugeley | 42 | 33 | 55/- | 45 | 39 | 46 | 47 | 40 | 2 | 1 | NA | 1 | R | T | - | - | - | - | |
| 7852 | Tuppenhurst Lane, Rugeley | 40 | 31 | 53/- | 45 | 39 | 46 | 46 | 40 | 1 | 1 | NA | 2 | R | T | - | - | - | - | |
| 7913 | Highfields Avenue, Rugeley | 46 | 39 | 62/- | 57 | 44 | 60 | 57 | 45 | 0 | 1 | NA | 23 | R | T | - | - | - | - | |
| 10433 | Darnford Lane, Whittington | 42 | 33 | 62/65 | 51 | 47 | 55 | 51 | 47 | 1 | 0 | NA | 1 | R | T | - | - | - | - | |
| 10729 | Cappers Lane, Lichfield | 48 | 39 | 67/70 | 55 | 51 | 59 | 56 | 51 | 1 | 0 | NA | 1 | R | T | - | - | - | - | |
| 10745 | Europa Way, Lichfield | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | NA | 1 | R | T | - | - | - | - | |
| 11741 | Darnford Lane, Lichfield | 42 | 32 | 61/64 | 49 | 46 | 53 | 50 | 46 | 1 | 0 | NA | 1 | R | T | - | - | - | - | |
| 12749 | Tamworth Road, Lichfield | 45 | 35 | 61/64 | 68 | 54 | 76 | 68 | 54 | 0 | 0 | NA | 5 | R | T | H | - | - | - | |
| 13325 | Titan Way, Britannia Enterprise Park | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | NA | 4 | R | T | - | - | - | - | |
| 17473 | Lichfield Road, Whittington | 59 | 49 | 77/80 | 40 | 37 | 45 | 59 | 50 | 19 | 13 | A | 2 | R | T | L | - | - | - | OSV22-Co1 |
| 17519 | Darnford Lane, Lichfield | 56 | 47 | 70/73 | 44 | 41 | 45 | 56 | 47 | 12 | 7 | A | 2 | R | T | - | - | - | - | OSV22-Co1 |
| 17578 | Marsh Lane, Whittington | 53 | 44 | 69/72 | 43 | 40 | 49 | 54 | 45 | 11 | 5 | A | 1 | R | T | - | - | - | - | OSV22-Co1 |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|------------------------------------|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| 17597 | Darnford Lane, Lichfield | 51 | 41 | 65/68 | 48 | 45 | 53 | 52 | 46 | 4 | 1 | A | 1 | R | T | - | - | - | - | OSV22-Co1 |
| 17721 | Cappers Lane, Lichfield | 46 | 36 | 66/69 | 56 | 51 | 59 | 57 | 51 | 0 | 0 | NA | 8 | R | T | - | - | - | - | |
| 17748 | Broad Lane, Huddlesford | 55 | 45 | 72/76 | 69 | 64 | 82 | 69 | 64 | 0 | 0 | A | 1 | R | T | H | - | - | - | |
| 17758 | Cappers Lane, Lichfield | 52 | 42 | 68/72 | 69 | 64 | 82 | 69 | 64 | 0 | 0 | A | 2 | R | T | H | - | - | - | |
| 17767 | Cappers Lane, Lichfield | 51 | 42 | 75/78 | 67 | 62 | 78 | 67 | 62 | 0 | 0 | A | 1 | R | T | H | - | - | - | |
| 17774 | Cappers Lane, Lichfield | 56 | 46 | 76/79 | 62 | 57 | 73 | 63 | 57 | 1 | 0 | A | 1 | R | T | H | - | - | - | |
| 17785 | Cappers Lane, Lichfield | 58 | 49 | 79/82 | 65 | 60 | 74 | 66 | 60 | 1 | 0 | S | 1 | R | T | H | - | - | NI | OSV22-D01 |
| 17800 | Cappers Lane, Whittington | 54 | 45 | 77/80 | 62 | 57 | 78 | 63 | 57 | 1 | 0 | A | 1 | R | T | H | - | - | - | |
| 18106 | Wood End Lane, Elmhurst | 51 | 42 | 64/- | 54 | 41 | 53 | 55 | 42 | 1 | 1 | A | 4 | R | T | - | - | - | - | |
| 18521 | Lime Way, Streethay | 51 | 42 | 65/68 | 59 | 54 | 60 | 60 | 54 | 1 | 0 | A | 8 | R | T | - | - | - | - | |
| 18547 | Rayson Close, Streethay | 54 | 44 | 67/70 | 56 | 51 | 60 | 58 | 52 | 2 | 1 | A | 9 | R | T | - | - | - | - | |
| 18550 | Rayson Close, Streethay | 53 | 43 | 67/70 | 60 | 55 | 62 | 61 | 55 | 1 | 0 | A | 2 | R | T | H | - | - | - | |
| 18558 | Rayson Close, Streethay | 51 | 42 | 66/69 | 55 | 49 | 64 | 56 | 50 | 2 | 1 | A | 13 | R | T | - | - | - | - | |
| 18600 | Elmhurst, Lichfield | 46 | 37 | 56/- | 62 | 39 | 52 | 62 | 37 | 0 | -2 | NA | 1 | R | T | - | - | - | - | |
| 18978 | Wood End Lane, Alrewas And Fradley | 56 | 47 | 70/72 | 52 | 51 | 55 | 56 | 51 | 4 | 1 | A | 6 | R | T | - | - | - | - | ~ |
| 19720 | Lichfield Road, Hanch | 48 | 35 | 58/- | 59 | 42 | 61 | 59 | 35 | -1 | -6 | NA | 10 | R | T | - | - | - | - | |
| 19867 | Lichfield Road, Hanch | 49 | 37 | 62/- | 51 | 40 | 62 | 49 | 37 | -2 | -2 | NA | 1 | R | T | - | - | - | - | |
| 20009 | Lichfield Road, Hanch | 53 | 36 | 60/- | 57 | 40 | 61 | 55 | 36 | -3 | -4 | A | 1 | R | T | - | - | - | - | |
| 20044 | Shaw Lane, Hanch | 50 | 40 | 62/- | 56 | 45 | 67 | 55 | 40 | -1 | -5 | A | 1 | R | T | - | - | - | - | |
| 20090 | Shaw Lane, Hanch | 47 | 38 | 67/- | 53 | 37 | 51 | 47 | 38 | -6 | 1 | NA | 2 | R | T | - | - | - | - | |
| 20124 | Lysways Lane, Hanch | 47 | 35 | 60/- | 49 | 38 | 57 | 47 | 35 | -3 | -2 | NA | 1 | R | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|-------------------------------------|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| 20395 | Wood End Lane, Curborough | 47 | 38 | 64/- | 68 | 60 | 81 | 68 | 60 | 0 | 0 | NA | 1 | R | T | H | - | - | - | |
| 20441 | Wood End Lane, Curborough | 63 | 53 | 83/- | 46 | 42 | 51 | 63 | 54 | 17 | 12 | S | 1 | R | T | - | - | - | NI | OSV22-Do4 |
| 20508 | Elmhurst, Lichfield | 47 | 34 | 54/- | 62 | 39 | 52 | 62 | 34 | 0 | -5 | NA | 1 | R | T | - | - | - | - | |
| 20527 | Bromley Hayes, Lichfield | 50 | 41 | 63/- | 54 | 48 | 70 | 55 | 48 | 2 | 1 | A | 2 | R | T | - | - | - | - | |
| 20579 | Riley Hill, Lichfield | 49 | 39 | 61/- | 45 | 33 | 57 | 50 | 40 | 6 | 7 | NA | 2 | R | T | L | - | - | - | # |
| 21095 | Riley Hill, Lichfield | 51 | 42 | 69/71 | 63 | 56 | 78 | 64 | 56 | 0 | 0 | A | 5 | R | T | H | - | - | - | |
| 21136 | Wood End Lane, King's Bromley | 50 | 41 | 67/- | 47 | 43 | 59 | 52 | 45 | 5 | 2 | A | 1 | R | T | - | - | - | - | ~ |
| 21213 | Woodend Common Barn, King's Bromley | 56 | 46 | 70/- | 40 | 36 | 45 | 56 | 47 | 16 | 10 | A | 1 | R | T | L | - | - | - | ~ |
| 21441 | Burton Road, Streethay | 44 | 35 | 59/62 | 65 | 59 | 74 | 65 | 59 | 0 | 0 | NA | 16 | R | T | H | - | - | - | |
| 21549 | Bailye Close, Streethay | 46 | 37 | 60/63 | 57 | 50 | 60 | 57 | 50 | 0 | 0 | NA | 14 | R | T | - | - | - | - | |
| 21649 | Bexmore Drive, Streethay | 45 | 36 | 60/63 | 62 | 56 | 74 | 62 | 56 | 0 | 0 | NA | 25 | R | T | H | - | - | - | |
| 21694 | Bailye Close, Streethay | 48 | 38 | 63/66 | 51 | 46 | 61 | 53 | 47 | 1 | 1 | NA | 15 | R | T | - | - | - | - | |
| 21739 | Bexmore Drive, Streethay | 45 | 36 | 60/63 | 52 | 45 | 56 | 53 | 45 | 1 | 0 | NA | 12 | R | T | - | - | - | - | |
| 22232 | Netherstowe, Lichfield | 48 | 39 | 65/68 | 44 | 40 | 47 | 49 | 42 | 5 | 2 | NA | 5 | R | T | - | - | - | - | # |
| 22329 | Netherstowe, Lichfield | 46 | 37 | 63/65 | 43 | 39 | 46 | 47 | 41 | 4 | 2 | NA | 5 | R | T | L | - | - | - | # |
| 22341 | Netherstowe, Lichfield | 53 | 43 | 68/71 | 47 | 43 | 54 | 53 | 46 | 6 | 3 | A | 1 | R | T | - | - | - | - | ~ |
| 22642 | Burton Road, Streethay | 68 | 63 | 77/80 | 69 | 64 | 75 | 68 | 63 | -1 | -1 | A | 1 | R | T | H | - | - | - | ^ |
| 22669 | Burton Road, Streethay | 66 | 57 | 84/87 | 65 | 60 | 67 | 67 | 61 | 3 | 1 | S | 1 | R | T | H | - | - | NI | OSV22-Do3 |
| 22736 | Burton Road, Streethay | 62 | 54 | 79/82 | 62 | 54 | 67 | 64 | 55 | 2 | 1 | S | 1 | R | T | - | - | - | NI | OSV22-Do2 |
| 22797 | Burton Road, Streethay | 62 | 54 | 77/80 | 65 | 60 | 67 | 65 | 60 | 1 | 0 | A | 2 | R | T | H | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|-----------------------------|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| 22853 | Burton Road, Streethay | 57 | 48 | 74/77 | 70 | 57 | 75 | 70 | 57 | 0 | 0 | A | 3 | R | T | H | - | - | - | |
| 22879 | Burton Road, Streethay | 58 | 49 | 73/76 | 70 | 57 | 75 | 70 | 57 | 0 | 0 | A | 3 | R | T | H | - | - | - | |
| 22924 | Holland Close, Lichfield | 51 | 42 | 72/75 | 70 | 57 | 75 | 70 | 57 | 0 | 0 | A | 7 | R | T | H | - | - | - | |
| 22961 | Holland Close, Lichfield | 50 | 41 | 71/74 | 55 | 49 | 64 | 56 | 50 | 1 | 1 | A | 5 | R | T | - | - | - | - | |
| 22989 | Holland Close, Lichfield | 51 | 42 | 71/74 | 55 | 49 | 64 | 56 | 50 | 2 | 1 | A | 3 | R | T | - | - | - | - | |
| 22993 | Meadow Croft, Lichfield | 49 | 40 | 64/67 | 55 | 49 | 64 | 56 | 50 | 1 | 0 | A | 5 | R | T | - | - | - | - | |
| 23033 | Meadow Croft, Lichfield | 48 | 39 | 63/66 | 54 | 49 | 67 | 55 | 49 | 1 | 0 | NA | 6 | R | T | - | - | - | - | |
| 23072 | Dyott Close, Lichfield | 48 | 38 | 64/67 | 54 | 49 | 67 | 55 | 49 | 1 | 0 | NA | 8 | R | T | - | - | - | - | |
| 23097 | Burton Old Road, Streethay | 49 | 40 | 64/67 | 55 | 49 | 64 | 55 | 50 | 1 | 0 | A | 13 | R | T | - | - | - | - | |
| 23147 | Burton Old Road, Streethay | 47 | 38 | 62/65 | 54 | 48 | 54 | 55 | 48 | 1 | 0 | NA | 6 | R | T | - | - | - | - | |
| 23175 | Burton Old Road, Streethay | 49 | 39 | 63/66 | 56 | 50 | 58 | 57 | 50 | 1 | 0 | NA | 7 | R | T | - | - | - | - | |
| 23242 | Ash Tree Lane, Lichfield | 56 | 47 | 72/75 | 63 | 58 | 68 | 64 | 58 | 1 | 0 | A | 7 | R | T | H | - | - | - | |
| 23264 | Burton Road, Streethay | 58 | 50 | 73/76 | 66 | 53 | 74 | 66 | 54 | 0 | 1 | A | 2 | R | T | H | - | - | - | |
| 23337 | Ash Tree Lane, Lichfield | 55 | 46 | 71/74 | 55 | 49 | 64 | 57 | 50 | 3 | 1 | A | 11 | R | T | - | - | - | - | ~ |
| 23625 | Ryknelnd Street, Streethay | 59 | 54 | 74/77 | 57 | 53 | 61 | 59 | 54 | 2 | 1 | A | 1 | R | T | - | - | - | - | |
| 24762 | Dyott Close, Lichfield | 53 | 45 | 65/68 | 67 | 54 | 75 | 67 | 54 | 0 | 0 | A | 4 | R | T | H | - | - | - | |
| 24839 | Burton Old Road, Streethay | 47 | 37 | 61/64 | 54 | 48 | 54 | 55 | 48 | 1 | 0 | NA | 10 | R | T | - | - | - | - | |
| 24857 | Wood End Lane, Fradley | 50 | 41 | 65/67 | 76 | 70 | 84 | 76 | 70 | 0 | 0 | A | 1 | R | T | H | - | - | - | |
| 25097 | Shaw Lane, Bromley Hayes | 41 | 32 | 54/- | 47 | 34 | 44 | 47 | 32 | 0 | -2 | NA | 1 | R | T | - | - | - | - | |
| 28123 | Lichfield Road, Whittington | 55 | 46 | 76/79 | 56 | 52 | 70 | 58 | 53 | 3 | 1 | A | 2 | R | T | - | - | - | - | OSV22-C01 |
| 28146 | Lichfield Road, Whittington | 46 | 36 | 65/68 | 48 | 45 | 53 | 50 | 45 | 2 | 1 | NA | 5 | R | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|---------------------------------------|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| 29081 | Common Lane, Whittington Barracks | 38 | 28 | 57/60 | 59 | 54 | 68 | 59 | 54 | 0 | 0 | NA | 5 | R | T | - | - | - | - | |
| 29572 | Whittington Barracks, Whittington | 44 | 34 | 63/66 | 49 | 38 | 62 | 50 | 40 | 1 | 1 | NA | 1 | R | T | - | - | - | - | |
| 29888 | Sandy Lane, Lichfield | 52 | 43 | 71/74 | 44 | 39 | 45 | 53 | 44 | 9 | 5 | A | 3 | R | T | - | - | - | - | ~ |
| 29922 | Sandy Lane, Lichfield | 46 | 36 | 64/67 | 44 | 39 | 45 | 48 | 40 | 4 | 2 | NA | 1 | R | T | - | - | - | - | # |
| 29989 | Heath Avenue, Whittington Barracks | 48 | 39 | 66/69 | 44 | 39 | 45 | 49 | 41 | 5 | 3 | NA | 4 | R | T | - | - | - | - | # |
| 30010 | Heath Avenue, Whittington Barracks | 49 | 40 | 65/68 | 44 | 39 | 45 | 49 | 42 | 6 | 3 | A | 8 | R | T | - | - | - | - | ~ |
| 30052 | Heath Avenue, Whittington Barracks | 47 | 37 | 64/67 | 44 | 39 | 45 | 48 | 41 | 5 | 2 | NA | 10 | R | T | - | - | - | - | # |
| 30168 | Worcester Road, Whittington Barracks | 43 | 33 | 62/65 | 63 | 58 | 78 | 63 | 58 | 0 | 0 | NA | 18 | R | T | H | - | - | - | |
| 30246 | Chester Road, Whittington Barracks | 41 | 32 | 61/64 | 51 | 40 | 56 | 51 | 41 | 0 | 1 | NA | 51 | R | T | - | - | - | - | |
| 30522 | Nottingham Road, Whittington Barracks | 40 | 31 | 59/62 | 51 | 40 | 56 | 51 | 41 | 0 | 0 | NA | 70 | R | T | - | - | - | - | |
| 30592 | Lichfield Road, Whittington | 51 | 42 | 70/73 | 53 | 49 | 67 | 55 | 50 | 2 | 1 | A | 2 | R | T | - | - | - | - | |
| 30600 | Lichfield Road, Whittington | 49 | 39 | 68/71 | 53 | 49 | 67 | 54 | 49 | 2 | 0 | NA | 1 | R | T | - | - | - | - | |
| 30770 | Darnford Lane, Lichfield | 46 | 36 | 61/64 | 48 | 45 | 53 | 50 | 45 | 2 | 1 | NA | 8 | R | T | - | - | - | - | |
| 30808 | Darnford Lane, Lichfield | 52 | 42 | 70/73 | 45 | 42 | 53 | 53 | 45 | 8 | 3 | A | 1 | R | T | - | - | - | - | OSV22-C01 |
| 31091 | Back Lane, Whittington | 41 | 32 | 58/61 | 57 | 52 | 69 | 57 | 52 | 0 | 0 | NA | 12 | R | T | - | - | - | - | |
| 31340 | Back Lane, Whittington | 42 | 32 | 61/64 | 54 | 49 | 69 | 54 | 49 | 0 | 0 | NA | 7 | R | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|--|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| 31347 | Broad Lane, Whittington | 50 | 40 | 67/70 | 48 | 44 | 46 | 51 | 45 | 3 | 1 | A | 1 | R | T | - | - | - | - | ~ |
| 31367 | Huddlesford, Lichfield | 50 | 40 | 68/71 | 53 | 47 | 52 | 54 | 48 | 1 | 1 | A | 3 | R | T | - | - | - | - | |
| 31466 | Huddlesford, Lichfield | 47 | 38 | 66/69 | 49 | 47 | 54 | 51 | 48 | 2 | 0 | NA | 2 | R | T | - | - | - | - | |
| 31472 | Huddlesford, Lichfield | 46 | 37 | 64/67 | 53 | 48 | 51 | 54 | 48 | 1 | 0 | NA | 4 | R | T | - | - | - | - | |
| 33376 | Darnford Lane, Lichfield | 53 | 44 | 69/72 | 45 | 42 | 53 | 54 | 46 | 9 | 4 | A | 1 | R | T | - | - | - | - | OSV22-Co1 |
| 34767 | Brookhay Lane, Lichfield | 47 | 39 | 62/64 | 54 | 50 | 61 | 55 | 51 | 1 | 0 | NA | 3 | R | T | - | - | - | - | |
| 700649 | Mill Farm Moorings | 55 | 45 | 81/84 | 57 | 52 | 68 | 59 | 53 | 2 | 1 | A | - | RM | T | - | - | - | - | |
| 700650 | Fradley Junction, Alrewas | 56 | 46 | 71/74 | 40 | 36 | 45 | 56 | 47 | 16 | 11 | A | 1 | R | T | L | - | - | - | ~ |
| 700651 | Fradley Junction, Alrewas | 49 | 39 | 65/68 | 40 | 36 | 45 | 50 | 41 | 10 | 5 | A | 10 | R | T | L | - | - | - | # |
| 700652 | Lichfield Road, Armitage | 52 | 43 | 69/- | 58 | 51 | 56 | 59 | 52 | 1 | 1 | A | 4 | R | T | - | - | - | - | |
| 701090 | Streethay Moorings | 59 | 51 | 77/80 | 62 | 54 | 67 | 63 | 54 | 1 | 1 | A | - | RM | T | - | - | - | - | |
| 701091 | King's Bromley Wharf Marina | 45 | 35 | 59/- | 57 | 45 | 64 | 57 | 45 | 0 | 0 | NA | - | RM | T | - | - | - | - | |
| 701099 | Millcroft Way, Handsacre | 36 | 27 | 58/- | 55 | 40 | 64 | 55 | 40 | 0 | 0 | NA | 101 | R | T | - | - | - | - | |
| 701100 | Linford Close, Rugeley | 36 | 27 | 54/- | 56 | 45 | 59 | 56 | 45 | 0 | 0 | NA | 139 | R | T | - | - | - | - | |
| 701101 | Lichfield Road, Armitage | 38 | 29 | 62/- | 51 | 48 | 54 | 51 | 48 | 0 | 0 | NA | 52 | R | T | - | - | - | - | |
| 701102 | Station Drive, Rugeley | 26 | 17 | 55/- | 60 | 45 | 64 | 60 | 45 | 0 | 0 | NA | 31 | R | T | - | - | - | - | |
| 746 | Tuppenhurst Lane, Rugeley (Cattery) | 52 | 41 | 64/- | 50 | 34 | 51 | 52 | 41 | 2 | 7 | B | 1 | G5 | T | - | - | - | - | \$ |
| 6574 | Hayes Meadow Primary School, Spode Avenue, Handsacre, (School) | 50 | 42 | 66/- | 51 | 46 | 53 | 54 | 48 | 2 | 1 | B | 1 | G5 | T | - | - | - | - | |
| 7913 | Tuppenhurst Lane, Rugeley, | 46 | 39 | 62/- | 57 | 44 | 60 | 57 | 45 | 0 | 1 | B | 1 | G5 | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|---|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| | (Shopping) | | | | | | | | | | | | | | | | | | | |
| 10433 | Club House,, Millfield (club) | 42 | 33 | 62/65 | 51 | 47 | 55 | 51 | 47 | 1 | 0 | B | 1 | G4 | T | - | - | - | - | \$ |
| 10745 | Titan Way, Britannia Enterprise Park, (General Commercial) | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 10745 | Titan Way, Britannia Enterprise Park, (General Commercial) | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 10745 | Titan Way, Britannia Enterprise Park, (Factory) | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 10745 | Europa Way, Britannia Enterprise Park, (General Commercial) | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 10745 | Europa Way, Britannia Enterprise Park, (General Commercial) | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 10745 | Europa Way, Britannia Enterprise Park, (General Commercial) | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 10745 | Titan Way, Britannia Enterprise Park, (General Commercial) | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 10745 | Europa House, Europa Way, Britannia Enterprise Park, (General Commercial) | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | B | 2 | G5 | T | - | - | - | - | |
| 10745 | Titan Way, Britannia | 44 | 35 | 59/63 | 58 | 49 | 52 | 58 | 49 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|---|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| | Enterprise Park, (General Commercial) | | | | | | | | | | | | | | | | | | | |
| 13325 | Britannia House, Britannia Way, Britannia Enterprise Park, (Office) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 2 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Prospect Drive, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Prospect Drive, Britannia Enterprise Park, (Shopping) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 2 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Titan Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Titan Way, Britannia | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|---|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| | Enterprise Park, (General Commercial) | | | | | | | | | | | | | | | | | | | |
| 13325 | Titan Way, Britannia Enterprise Park, (Factory) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Titan Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (Shopping) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (Office) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Prospect Drive, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Prospect Drive, Britannia Enterprise Park, (Factory) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Titan Way, Britannia | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|---|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| | Enterprise Park, (Office) | | | | | | | | | | | | | | | | | | | |
| 13325 | Prospect Drive, Britannia Enterprise Park, (Shopping) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Prospect Drive, Britannia Enterprise Park, (Factory) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 13325 | Europa Way, Britannia Enterprise Park, (General Commercial) | 41 | 32 | 56/59 | 55 | 46 | 46 | 55 | 46 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 18213 | Nanscawen Road, Fradley, (General Commercial) | 61 | 52 | 76/78 | 45 | 41 | 49 | 61 | 52 | 16 | 11 | B | 1 | G5 | T | - | - | - | - | ^ |
| 18281 | Common Lane, Fradley, (Office) | 45 | 35 | 58/61 | 58 | 52 | 69 | 58 | 52 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 18281 | Blenheim Way, Fradley Park, (General Commercial) | 45 | 35 | 58/61 | 58 | 52 | 69 | 58 | 52 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 18281 | Lancaster Road, Fradley Park, (General Commercial) | 45 | 35 | 58/61 | 58 | 52 | 69 | 58 | 52 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 18665 | Fradley Business Centre, Wood End Lane, Fradley, (Office) | 62 | 52 | 78/81 | 42 | 41 | 53 | 62 | 53 | 20 | 12 | B | 11 | G5 | T | L | - | - | - | ^ |
| 19720 | Elmhurst Spring, Lichfield | 48 | 38 | 58/- | 59 | 42 | 61 | 59 | 38 | -1 | -4 | B | 1 | G5 | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|---|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| | Road, Hanch, (General Commercial) | | | | | | | | | | | | | | | | | | | |
| 20527 | Kings Bromley Wharf, , Bromley Hayes, (General Commercial) | 50 | 41 | 63/- | 54 | 48 | 70 | 55 | 48 | 2 | 1 | B | 2 | G5 | T | - | - | - | - | |
| 20527 | Bromley Wharf, , Bromley Hayes, (Shopping) | 50 | 41 | 63/- | 54 | 48 | 70 | 55 | 48 | 2 | 1 | B | 3 | G5 | T | - | - | - | - | |
| 21095 | Wood End Farm, Wood End Lane, Curborough, (General Commercial) | 51 | 42 | 69/71 | 63 | 56 | 78 | 64 | 56 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 21136 | Woods Farm, Wood End Lane, Curborough, (General Commercial) | 50 | 41 | 67/- | 47 | 43 | 59 | 52 | 45 | 5 | 2 | B | 1 | G5 | T | - | - | - | - | \$ |
| 21312 | Burton Road, Streethay, (General Commercial) | 44 | 35 | 63/66 | 51 | 45 | 54 | 52 | 45 | 1 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 21694 | Streethay Service Station, Burton Road, Streethay, (General Commercial) | 48 | 38 | 63/66 | 51 | 46 | 61 | 53 | 47 | 1 | 1 | B | 1 | G5 | T | - | - | - | - | |
| 22232 | Curborough House Farm, , Netherstowe, (General Commercial) | 48 | 39 | 65/68 | 44 | 40 | 47 | 49 | 42 | 5 | 2 | B | 1 | G5 | T | | - | - | - | \$ |
| 22478 | Wood End Lane, Fradley, (Office) | 66 | 56 | 86/88 | 49 | 33 | 54 | 66 | 56 | 17 | 23 | B | 2 | G5 | T | - | - | - | - | ^ |
| 22736 | Burton Road, Streethay, (Office) | 62 | 54 | 79/82 | 62 | 54 | 67 | 64 | 55 | 2 | 1 | B | 1 | G5 | T | - | - | - | - | |
| 23518 | Lancaster House, Wellington | 56 | 47 | 70/73 | 51 | 47 | 55 | 57 | 50 | 6 | 2 | B | 2 | G5 | T | - | - | - | - | ^ |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|---|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| | Crescent, Fradley Park, (General Commercial) | | | | | | | | | | | | | | | | | | | |
| 23518 | Wellington Crescent, Fradley Park, (Office) | 56 | 47 | 70/73 | 51 | 47 | 55 | 57 | 50 | 6 | 2 | B | 3 | G5 | T | - | - | - | - | ^ |
| 23518 | Trent House, Wellington Crescent, Fradley Park, (General Commercial) | 56 | 47 | 70/73 | 51 | 47 | 55 | 57 | 50 | 6 | 2 | B | 1 | G5 | T | - | - | - | - | ^ |
| 23518 | Brickyard Farm, Rykneld Street, Streethay, (Office) | 56 | 47 | 70/73 | 51 | 47 | 55 | 57 | 50 | 6 | 2 | B | 1 | G5 | T | - | - | - | - | ^ |
| 23518 | Lincoln House, Wellington Crescent, Fradley Park, (General Commercial) | 56 | 47 | 70/73 | 51 | 47 | 55 | 57 | 50 | 6 | 2 | B | 1 | G5 | T | - | - | - | - | ^ |
| 23518 | Wood End Lane, Fradley, (General Commercial) | 56 | 47 | 70/73 | 51 | 47 | 55 | 57 | 50 | 6 | 2 | B | 1 | G5 | T | - | - | - | - | ^ |
| 23518 | Tame House, Wellington Crescent, Fradley Park, (General Commercial) | 56 | 47 | 70/73 | 51 | 47 | 55 | 57 | 50 | 6 | 2 | B | 5 | G5 | T | - | - | - | - | ^ |
| 23518 | Bridgford Building, Wellington Crescent, Fradley Park, (General Commercial) | 56 | 47 | 70/73 | 51 | 47 | 55 | 57 | 50 | 6 | 2 | B | 1 | G5 | T | - | - | - | - | ^ |
| 23625 | Orchard Farm, Rykneld Street, Streethay, (General Commercial) | 59 | 54 | 74/77 | 57 | 53 | 61 | 59 | 54 | 2 | 1 | B | 1 | G5 | T | - | - | - | - | |
| 24230 | Fradley Distribution Park, Wood End Lane, Fradley, (General Commercial) | 51 | 42 | 69/71 | 45 | 44 | 51 | 52 | 46 | 7 | 2 | B | 1 | G5 | T | - | - | - | - | \$ |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|--|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| 24230 | Halifax Avenue, Fradley Park, (General Commercial) | 51 | 42 | 69/71 | 45 | 44 | 51 | 52 | 46 | 7 | 2 | B | 1 | G5 | T | - | - | - | - | \$ |
| 24857 | Fradley Distribution Park, Wood End Lane, Fradley, (General Commercial) | 50 | 41 | 65/67 | 76 | 70 | 84 | 76 | 70 | 0 | 0 | B | 1 | G5 | T | H | - | - | - | |
| 29490 | Staffordshire Regiment Museum, Whittington Barracks, Lichfield, (Museum) | 48 | 38 | 68/71 | 69 | 64 | 78 | 69 | 64 | 0 | 0 | B | 1 | G3 | T | H | - | - | - | |
| 29975 | Whittington Barracks,, Lichfield, (General Commercial) | 46 | 37 | 66/69 | 48 | 37 | 56 | 50 | 40 | 2 | 2 | B | 1 | G5 | T | - | - | - | - | |
| 29975 | The Mercian Regiment, Whittington Barracks, Lichfield, (Office) | 46 | 37 | 66/69 | 48 | 37 | 56 | 50 | 40 | 2 | 2 | B | 1 | G5 | T | - | - | - | - | |
| 29975 | Defense Medical Services, Whittington Barracks (Central Government Office) | 46 | 37 | 66/69 | 48 | 37 | 56 | 50 | 40 | 2 | 2 | B | 1 | G5 | T | - | - | - | - | |
| 31367 | Plough Cottages,, Huddlesford, (General Commercial) | 50 | 40 | 68/71 | 53 | 47 | 52 | 54 | 48 | 1 | 1 | B | 1 | G5 | T | - | - | - | - | |
| 31367 | Plough Inn, Huddlesford Lane, Huddlesford, (Inn) | 50 | 40 | 68/71 | 53 | 47 | 52 | 54 | 48 | 1 | 1 | B | 1 | G5 | T | - | - | - | - | |
| 31466 | Huddlesford House Farm, Huddlesford (General Commercial) | 47 | 38 | 66/69 | 49 | 47 | 54 | 51 | 48 | 2 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 31505 | Canal Side Cottages, | 48 | 39 | 68/71 | 51 | 48 | 61 | 52 | 48 | 2 | 0 | B | 1 | G5 | T | - | - | - | - | |

| Assessment Location | | Impact criteria | | | | | | | | | | Significance criteria | | | | | | | | Significant effect |
|---------------------|--|---|-------------|------------|---------------------------------------|-------------|------------|--|-------------|----------|-------------|-----------------------|----------------------------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|--------------------|
| ID | Area represented | Proposed Scheme only (Year 15 traffic) | | | Do nothing (Opening year baseline) | | | Do something (Opening year baseline + Year 15 traffic) **** | | Change | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Mitigation of effect | |
| | | Day * | Night ** | Max *** | Day * | Night ** | Max *** | Day * | Night ** | Day * | Night ** | | | | | | | | | |
| | Huddlesford Lane, Huddlesford, (Club) | | | | | | | | | | | | | | | | | | | |
| 34767 | Bearshay Farm, Brookhay Lane, Lichfield, (General Commercial) | 47 | 39 | 62/64 | 54 | 50 | 61 | 55 | 51 | 1 | 0 | B | 1 | G5 | T | - | - | - | - | |
| 700647 | Whittington Pre School, Heath Avenue, Whittington Barracks, (School) | 46 | 37 | 66/69 | 51 | 40 | 56 | 52 | 42 | 1 | 1 | B | 1 | G4 | T | - | - | - | - | \$ |
| 700648 | Church Street, Whittington, (Parish Hall) | 42 | 32 | 61/64 | 57 | 52 | 69 | 57 | 52 | 0 | 0 | B | 1 | G3 | T | - | - | - | - | |
| 700651 | Fradley Junction, Alrewas, (General Commercial) | 50 | 40 | 65/68 | 40 | 36 | 45 | 50 | 42 | 10 | 5 | B | 1 | G5 | T | L | - | - | - | \$ |
| 701101 | The Green, Handsacre, (General Commercial) | 38 | 29 | 62/- | 51 | 48 | 54 | 51 | 48 | 0 | 0 | B | 1 | G5 | T | - | - | - | - | |

Direct impact - Summary

4.3.8 The operational airborne noise impacts identified in Table 3 are summarised in Table 4.

Table 4: Summary of operational airborne sound impacts

| Receptor | Number of impacts | | |
|----------------------------|-------------------|----------|-------|
| | Minor | Moderate | Major |
| Residential properties | 33 | 55 | 23 |
| Non-residential properties | 0 | 15 | 14 |
| Quiet areas | None | None | None |

4.4 Assessment of impacts and effects

Residential receptors: direct effects - individual buildings

4.4.1 Taking account of the avoidance and mitigation measures, as presented in Volume 22: Report 23, incorporated into the Proposed Scheme, the assessment has identified one residential dwelling close to the Proposed Scheme, where noise would exceed the daytime trigger threshold set in the Regulations. It is therefore estimated that this building is likely to qualify for noise insulation under the Regulations. This is indicated on Volume 5: Map Book - Sound, noise and vibration, Map series SV-02:

- The Manor, Streethay, receptor reference 22669 (marked as OSV22-Do3 in Table 3).

4.4.2 Taking account of the avoidance and mitigation measures, as presented in Volume 22: Report 23, incorporated into the Proposed Scheme, the assessment has identified a number of residential buildings close to the Proposed Scheme where the daytime forecast noise level does not exceed the threshold set in the Regulations but the forecast night-time noise level would exceed the World Health Organization's Interim Target of 55dB, or the maximum noise level (dependent on the number of train passes) as a train passes exceeds the criterion. It is estimated that these buildings will also be offered noise insulation as described previously in the Avoidance and mitigation measures section. These buildings are indicated on Volume 5: Map Book - Sound, noise and vibration, Map series SV-02:

- Streethay Farm, Burton Road, receptor reference 22736 (marked as OSV22-Do2 in Table 3);
- Mill Farm, Lichfield, receptor reference 17785 (marked as OSV22-Do1 in Table 3); and
- Ravenshaw House, Curborough, receptor reference 20441 (marked as OSV22-Do4 in Table 3).

- 4.4.3 The mitigation measures including noise insulation will reduce noise inside all dwellings such that it will not reach a level where it would significantly affect residents. In this area the assessment has identified one residential building, represented by receptor 22642, close to the Proposed Scheme, where noise would exceed the daytime trigger threshold set in the Regulations. Furthermore the forecast night-time noise level would exceed the World Health Organization's Interim Target of 55dB². However, the overall sound levels at this receptor will be reduced as a result of the Proposed Scheme and therefore mitigation will not be provided to this receptor.

Residential receptors: direct effects – communities

- 4.4.4 The avoidance and mitigation measures in this area will avoid significant airborne noise effects on the majority of receptors, and at the following communities:
- Whittington (except as noted in Table 5);
 - Streethay;
 - Litchfield; and
 - Handsacre (except as noted in Table 5).
- 4.4.5 Taking account of the envisaged mitigation, Map Series SV-02 (Volume 5 Map book) shows the long term 40dB³ night-time sound level contour from the operation of trains on the Proposed Scheme. The extent of the 40dB night-time sound level contour is equivalent to, or slightly larger than, the 50dB daytime contour⁴. In general, below these levels adverse effects are not expected.
- 4.4.6 Above 40dB during the night and 50dB during the day the effect of noise is dependent on the baseline sound levels in that area and the change in sound level (magnitude of effect) brought about by the Proposed Scheme. The airborne noise impacts and effects forecast for the operation of the scheme are presented on Map Series SV-02 (Volume 5 Map Book).
- 4.4.7 The changes in noise levels are likely to affect the acoustic character of the area such that there is a perceived change in the quality of life and are considered to be significant when assessed on a community basis taking account of the local context.
- 4.4.8 Minor ground-borne vibration impacts are also identified at approximately 25 residential properties on Rowan Drive, Handsacre. The residential properties are located within close proximity to an existing railway, which includes the operation of freight services that are a source of appreciable vibration. Considering the number and magnitude of the impacts and the existing appreciable ambient vibration these ground-borne vibration impacts are not considered a significant effect.

² World Health Organization, Night-time Noise Guidelines for Europe, 2010

³ Defined as the equivalent continuous sound level from 23:00 to 07:00 or $L_{pAeq,night}$

⁴ With the train flows described in the assumptions section of this CFA Report, the daytime sound level (defined as the equivalent continuous sound level from 07:00 to 23:00 or $L_{pAeq,day}$) from the Proposed Scheme would be approximately 10dB higher than the night-time sound level. The 40dB contour therefore indicates the distance from the Proposed Scheme at which the daytime sound level would be 50dB.

- 4.4.9 One isolated property within the area has been identified as being subject to an observed adverse vibration effect; this effect is likely to be considered as an effect on the acoustic character of the area such that there is a perceived change in the quality of life. However, as the affected properties are spatially remote from larger defined residential areas, are subject to smaller magnitudes of noise effect the effect is not considered to be significant.
- 4.4.10 Approximately 40 isolated properties within the area have been identified as being subject to an observed adverse noise effect; these effects are likely to be considered as an effect on the acoustic character of the area such that there is a perceived change in the quality of life. However, as the affected properties are spatially remote from larger defined residential areas, are subject to smaller magnitudes of noise effect, or are small in number, the effects are not considered to be significant.
- 4.4.11 The direct adverse effects⁵ on the areas of the residential communities identified in Table 5 are considered to be significant.

Table 5: Direct adverse effects on residential communities and shared open areas that are considered significant on a community basis

| Significant effect number (see Map series SV-02, Table 1 and 3) | Source of significant effect | Time of day | Location and details |
|---|--|------------------------|--|
| OSV22-C01 | Airborne noise increase from new train services | Daytime and night-time | Around 10 dwellings in the north of Wittington in the vicinity of Darnford Lane, Marsh Lane and Lichfield Road. Forecast increases in sound from the railway are likely to cause a major adverse effect on the acoustic character of the area around the closest properties. The effect on the acoustic character of residential areas reduces on those that are located further from the railway would be a minor effect. There is shared open space adjacent to these dwellings that would also be adversely affected in this community area. |
| OSV22-C02 | Airborne noise increase from new train services (Phase One operation only) | Daytime and night-time | Approaching 60 dwellings on the south of Handacre, closest to the WCML and the tie in to Proposed Scheme in the vicinity of Chestnut Close, Rowan Drive, Warren Croft, Barn Road and Lichfield Road. Forecast increases in sound from the railway are likely to cause a major adverse effect on the acoustic character of the area around the closest properties. The effect on the acoustic character of residential areas that are located further from the railway would be a moderate effect. There is shared open space located just off Chestnut Close that would also be adversely affected in this community area. |

⁵ Information is provided in the emerging National Planning Practice Guidance – Noise <http://planningguidance.planningportal.gov.uk>, e.g. the table summarising the noise exposure hierarchy

Residential receptors: indirect effects

- 4.4.12 The transport assessment presented in Volume 5: Appendix TR-001-000, has been used to identify those roads or railways within this study area where the alignment remains as at present, but a change in flow or composition is identified which is greater than the screening criteria defined in Volume 5: Appendix SV-001-000. No roads or railways which exceed the criteria defined in Volume 5: Appendix SV-001-000 have been identified in this study area.
- 4.4.13 The assessment of operational noise and vibration indicates that significant indirect effects on residential receptors are unlikely to occur in this area.

Non-residential receptors: direct effects

- 4.4.14 The assessment has identified airborne noise impacts at commercial premises on Nanscawen Road, Fradley Business Centre, premises on Wood End Lane, and Fradley Business Park, represented by receptor references 18213, 18665, 22478 and 23518.

Nanscawen Road

- 4.4.15 A major operational noise impact has been identified based upon the change in the airborne noise level outside this receptor, reference 18213. An assessment has been undertaken to determine if this impact would result in a likely significant effect at this non-residential receptor, using the significance criteria detailed in Volume 5: Appendix 001-000.
- 4.4.16 The receptor is currently occupied by Kyocera Unimerco Tooling Limited and consists of a two / three storey purpose built office building constructed from brick walls and double glazed windows. Ventilation is believed to be provided by air conditioning.
- 4.4.17 The sound insulation that would be provided by this building shell and ventilation arrangement is likely to be substantially greater than the assumption of open windows that forms the basis of the relevant screening criterion defined for this category of building in Volume 5: Appendix SV-001-000. The incident sound levels forecast in Table 3 outside this receptor are therefore unlikely to give rise to a significant observed adverse effect inside this receptor.

Fradley Business Centre

- 4.4.18 A major operational noise impact has been identified based upon the change in the airborne noise level outside this receptor, reference 18665. An assessment has been undertaken to determine if this impact would result in a likely significant effect at this non-residential receptor, using the significance criteria detailed in Volume 5: Appendix 001-000.

- 4.4.19 The receptor is currently occupied by Morganrose Electrify Ltd and is believed to consist of a warehouse / distribution building which is closest to the Proposed Scheme and a two storey purpose built office building constructed from brick walls and double glazed windows. Ventilation is believed to be provided by opening the windows. The office building screened from the Proposed Scheme by the warehouse building.
- 4.4.20 Considering the orientation of the sensitive areas of the building, the incident sound levels within the office are not likely to result in activity disturbance and therefore, the forecast impact outside this non-residential receptor is unlikely to result in a significant observed adverse noise effect inside this receptor.

Wood End Lane

- 4.4.21 A major operational noise impact has been identified based upon the change in the airborne noise level outside this receptor, reference 22478. An assessment has been undertaken to determine if this impact would result in a likely significant effect at this non-residential receptor, using the significance criteria detailed in Volume 5: Appendix 001-000.
- 4.4.22 The receptor is currently occupied by Beacon Metals Limited and consists of warehouse / distribution buildings previously part of Fradley Aerodrome. No glazing has been identified in the facades facing the Proposed Scheme. It is assumed that ventilation is provided by opening the doors. The type of activities undertaken within these premises are not noise sensitive and therefore the incident sound levels from the Proposed Scheme within the building are not likely to result in activity disturbance and therefore, the impact at this non-residential receptor will not result in a significant observed adverse noise effect inside this receptor.

Fradley Business Park

- 4.4.23 A moderate operational noise impact has been identified based upon the change in the airborne noise level outside the receptor reference 23518. An assessment has been undertaken to determine if this impact would result in a likely significant effect at this non-residential receptor, using the significance criteria detailed in Volume 5: Appendix 001-000.
- 4.4.24 This receptor represents a number of commercial premises accessed from Wellington Crescent, or Wood End Lane. Some of the buildings are warehouses, distribution centres or a scrap yard which are not considered to be noise sensitive. Considering the building use and construction, the incident sound levels from the Proposed Scheme within the building are not likely to result in activity disturbance and therefore, the impact at these receptors will not result in a significant observed adverse noise effect inside the buildings.
- 4.4.25 The remaining buildings within Fradley Business Park are primarily office buildings. Tame House, Trent House and Lincoln House are two storey office buildings which are located an additional 200m from the Proposed Scheme, and considering this additional distance it is unlikely that the screening level would be exceeded at these buildings and therefore a significant effect is not identified at these premises.

- 4.4.26 Sentinel House, Lancaster House and Bridgford Building are located closest to the Proposed Scheme and are all 2 storey brick and glazed cladding constructions. Ventilation is believed to be provided by air conditioning negating the need to open windows. The sound insulation that would be provided by this building shell and ventilation arrangement is likely to be substantially greater than the assumption of open windows that forms the basis of the relevant screening criterion defined for this category of building in Volume 5: Appendix SV-001-000. The incident sound levels forecast in Table 3 outside this receptor are therefore unlikely to give rise to a significant observed adverse effect inside these buildings.

Summary

- 4.4.27 The assessment of operational noise and vibration indicates that no significant effects are likely. The assessment of effects on non-residential receptors has been undertaken on a worst case basis.

Non-residential receptors: indirect effects

- 4.4.28 The transport assessment presented in Volume 5: Appendix TR-001-000, has been used to identify those roads or railways within this study area where the alignment remains as at present, but a change in flow or composition is identified which is greater than the screening criteria defined in Volume 5: Appendix SV-001-000. No roads or railways which exceed the criteria defined in Volume 5: Appendix SV-001-000 have been identified in this study area.
- 4.4.29 The assessment of operational noise and vibration indicates that significant indirect effects are unlikely to occur on non-residential receptors in this area.

Cumulative effects

- 4.4.30 Details of properties being currently developed which were afforded planning approval before the safeguarding date are presented in Volume 5: Appendix CToo4-000. Within this area, the operational sound, noise or vibration associated with these developments in conjunction with the operation of the Proposed Scheme do not result in any significant cumulative effects.